CLAIMS

1. A jogger member for use in erecting a universal press frame for a female blanking die for die cutting machine for die cutting and/or blanking a carton blank, said universal press frame including a rectangular framework of connecting rails comprising two side rails, a front rail and a rear rail and a plurality of jogger members which are selectively-disposed within an internal groove in said rails and along the interior perimeter of said rectangular framework, said jogger member comprising:

a) a base member;

b) means which are operatively-associated with said base member for selectively, but rigidly, securing said jogger member to the interior perimeter of said rectangular framework;

c) an adjustable support member which is adjustably-slidably-disposed with respect to said base member; and

d) a guiding member having an upper edge and a lower edge, said guiding member being secured to one face of said adjustable support member to provide a depending guiding face.

2. The jogger member as claimed in claim 1, wherein said connecting rails are each provided with an internal groove having an upper depending longitudinally-extending flange and a lower upstanding longitudinally-extending flange, defining said internal groove.

3. The jogger member as claimed in claim 2, wherein said means (b) comprises an inwardly-directed slot by means of which said jogger member may be adjustably-attached to said rails of said rectangular framework by means of screws or bolts.

4. The jogger member as claimed in claim 2, wherein said means (b) comprises a transverse plate of a dimension enabling it to cooperate with said rails of said rectangular framework, said transverse plate including at least one tapped hole into which a bolt or screw may be threaded to engage said rail of said rectangular framework.

5. The jogger member as claimed in claim 2, including slidable captive cap means having a leading edge, said slidable captive cap means being slidably-secured to said guiding member for selective disposition of its leading edge a predetermined cantilevered distance over said guiding face of said guiding member.

6. The jogger member as claimed in claim 2, wherein said base member is provided with an additional element which is secured to said base member, but which is slidable in a direction which is perpendicular to said guiding face of said guiding member.

7. The jogger member as claimed in claim 6, wherein said additional element comprises a flat plate, wherein said base member is provided with a support arm which extends perpendicularly to said base member, said flat plate being selectively-slidably-retained along a longitudinal axis of said support arm.

8. The jogger member as claimed in claim 7, wherein said flat plate is provided with at least one longitudinally-extending slot, and wherein said support arm is provided with screw means which is positioned within said longitudinally-extending slot, thereby to hold said flat plate in its selected position, following its slidable movement.

9. The jogger member as claimed in claim 6, wherein said additional element comprises an "L"-shaped support member which is slidably-secured to a lateral face of said base member, said "L"-shaped support member having a leg which is disposed parallel to said base member, and an arm which is disposed at right angles to said base member but which is selectively-slidable in a direction which is perpendicular to said guiding face of said guiding member, and wherein said guiding member is fixedly-secured to a face of said arm of said "L"-shaped support member.

10. The jogger member as claimed in claim 9, wherein said guiding member is fixedly-secured to a face of said arm of said "L"-shaped support member; wherein said additional element comprises a flat plate, said flat plate being provided with at least one longitudinally-extending slot, and wherein said base member is provided with an additional support arm which extends perpendicularly to said base member, said flat plate being selectively- slidably-retained along a longitudinal axis of said support arm.

11. The jogger member as claimed in claim 9, wherein said arm is provided with screw means which is positioned within said longitudinally-extending slot, thereby to hold said flat plate in its selected position, following its slidable movement.

12. The jogger member as claimed in claim 9, wherein said leg of said "L"-shaped support member includes a longitudinally-extending slot, wherein said base member includes a block extending outwardly perpendicular thereto, and which has a flush face which is flush with said lateral face of said base member, said block being provided with bolt means which is disposed in said slot to hold said leg in its selected position.

13. The jogger member as claimed in claim 12, wherein said lateral face of said base member and said flush face of said block are each provided with a transversely-extending inset channel, and wherein said leg of said "L"-shaped support member is provided with a mating protrusion, said transversely-extending inset channel and said mating protrusion cooperating to provide a slideway for said leg with respect to said base member.

14. The jogger member as claimed in claim 2, wherein said guiding member includes a supplemental guiding finger having an upper end and a lower end, said supplemental guiding finger being slidably-associated with said guiding face of said guiding member, said supplemental guiding finger being slidable between a position in which its lower edge is flush with said lower end of said guiding member and a position where it extends below said lower edge of said guiding member.

15. The jogger member as claimed in claim 14, wherein said supplemental guiding finger includes a longitudinally-extending slot, and wherein said guiding member includes bolt means which is secured to said guiding member and which projects into said longitudinally-extending slot to limit said extent of movement of said supplemental guiding finger within said longitudinally-extending slot.

16. The jogger member as claimed in claim 15, wherein said guiding face of said guiding member includes a longitudinally-extending slot within which said supplemental guiding finger is guided to slide, and wherein said supplemental guiding finger is provided with a pair of parallel lateral complementary flanges, whereby said longitudinally-extending slot and said pair of parallel lateral complementary flanges thereby cooperate to hold said supplemental guiding finger within said longitudinally-extending slot as well as to provide a slideway for said supplemental guiding finger with respect to said guiding member.

17. The jogger member as claimed in claim 5, wherein said slidable captive cap includes a longitudinally-extending slot, wherein screw means is disposed in said slot and is threadedly-secured to said upper edge of said guiding member to hold said slidable captive cap to said guiding member as well as to secure said slidable captive cap in its selected cantilevered position, and said guiding member includes a supplemental guiding finger having an upper end and a lower end, said supplemental guiding finger being slidably-associated with said guiding face of said guiding member, said supplemental guiding finger being slidable between a position in which its lower edge is flush with said lower end of said guiding member and a position where it extends below said lower edge of said guiding member.

18. The jogger member as claimed in claim 1, wherein said connecting rails are each provided with an internal dovetail-shaped groove which defines said internal groove.

19. The jogger member as claimed in claim 18, wherein said means (b) comprises a two-piece dovetail block, a first piece of said two-piece dovetail block being selectively-fixed to said base member and terminating in a portion of a dovetail projection, and a slidably-connectable connection by way of a cooperating, slidably-connectable second piece which terminates in the rest of said dovetail projection.

20. The jogger member as claimed in claim 19, wherein said slidably-connectable connection is provided by a longitudinally-extending slot in said first piece and a transversely-spaced-apart, longitudinally-extending depending flange at an inner face of said first piece, and wherein said cooperating second piece includes a longitudinally-extending, upwardly-projecting flange at an outer, longitudinally-extending face of said second piece, said longitudinally-extending, upwardly-projecting flange being transversely-separated from a longitudinally-extending inner face of said second piece by a longitudinally-extending groove.

21. The jogger member as claimed in claim 19, wherein said slidably-connectable connection is provided by a longitudinally-extending flange at an outer, longitudinally-extending face of said first piece, said longitudinally-extending flange being transversely-separated from a longitudinally-extending inner face of said first piece by a longitudinally-extending groove, and wherein said second piece includes a longitudinally-extending slot, and a transversely-spaced-apart, longitudinally-extending depending flange at an inner face of said second piece.

22. The jogger member as claimed in claim 18, wherein said base member (a) is provided with a primary additional element, said primary additional element being slidably-secured to said base member, so as to be slidable in a direction which is perpendicular to said guiding face of said guiding member.

23. The jogger member as claimed in claim 22, wherein said primary additional element is provided with at least one longitudinally-extending slot, said primary additional element being selectively-slidably-retained along a transverse axis of said base member, said base member being provided with screw means which is positioned within each said at least one longitudinally-extending slot, thereby to hold said primary additional element in its selected position, following its slidable movement, said primary additional element being secured to said guiding member.

24. The jogger member as claimed in claim 18, wherein said guiding member includes a supplemental guiding finger having an upper end and a lower end, said supplemental guiding finger being slidably-associated with said guiding face of said guiding member, said supplemental guiding finger being slidable between a position in which its lower edge is flush with said lower end of said guiding member and a position where it extends below said lower edge of said guiding member.

25. The jogger member as claimed in claim 24, wherein said supplemental guiding finger includes a longitudinally-extending slot, and wherein said guiding member includes bolt means which is secured to said guiding member and which projects into said longitudinally-extending slot of said guiding finger to limit the extent of movement of said supplemental guiding finger within said longitudinally-extending slot.

26. The jogger member as claimed in claim 24, wherein said guiding face of said guiding member includes a longitudinally-extending slot within which said supplemental guiding finger is guided to slide, and wherein said supplemental guiding finger is provided with a pair of parallel lateral complementary flanges, whereby said longitudinally-extending slot and said pair of parallel lateral complementary flanges thereby cooperate to hold said supplemental guiding finger within said longitudinally-extending slot as well as cooperating to provide a slideway for said supplemental guiding finger with respect to said guiding member.

27. The jogger member as claimed in claim 18, wherein said jogger member includes two slidably-interconnected main pieces, a first said main piece comprising a lower block including a first upcomer projecting upwardly at right angles thereto, said upcomer including a first inner longitudinally-extending arm, and a second, outer, transversely-extending arm, a second main piece including a transversely-extending leg, said leg having a longitudinally-extending closed-ended slot therein, and means cooperating with said slot and said block of said first main piece to enable sliding of said transversely-extending leg with respect to said block and to hold said transversely-extending leg in a selected position with respect to said block, and a second upcomer projecting upwardly at right angles thereto said second upcomer including a first inner longitudinally-extending arm of a width which is equal to the width of the first inner longitudinally-extending arm of said first main piece, and an inner longitudinally-extending second flange projecting inwardly from said first inner longitudinally-extending arm, and having its lower end at a level higher than the height of the first inner longitudinally-extending arm of said first upcomer, the outer face of said first inner longitudinally-extending arm of said second upcomer comprising said guiding member.

28. The jogger member as claimed in claim 18, wherein said jogger member includes two slidably-interconnected main pieces, a first said main piece comprising a lower block including a first upcomer projecting upwardly at right angles thereto, said first upcomer including a first inner longitudinally-extending arm, and a second, outer, transversely-extending arm, a second main piece including a transversely-extending leg, said leg having a longitudinally-extending closed-ended slot therein, and means cooperating with said slot and said block of said first main piece to enable sliding of said transversely-extending leg with respect to said block and to hold said transversely-extending leg in a selected position with respect to said block, and a second upcomer projecting upwardly at right angles thereto, said second upcomer including a first inner longitudinally-extending arm of a width which is equal to the width of the first inner longitudinally-extending arm of said first main piece, and an inner longitudinally-extending first flange projecting inwardly from said first inner longitudinally-extending arm, and having its lower end at a level

higher than the height of the first inner longitudinally-extending arm of said first upcomer, the outer face of said first inner longitudinally-extending arm of said second upcomer comprising said guiding member.

29. The jogger member as claimed in claim 27, wherein said block of said first main piece includes an inner groove which is provided by a spaced-apart upper projecting first flange and a lower projecting second flange; wherein said transversely-extending leg of said second main member includes an outer third flange which is provided by a spaced-apart upper groove and a lower groove; and wherein said block includes a tapped aperture, and said slot of said transversely-extending leg is provided with a screw projecting therethrough and cooperating with said tapped aperture of said block.

30. The jogger member as claimed in claim 29, wherein said first inner longitudinally-extending arm of said first main piece includes an aperture therethrough, which cooperates with an aligned projection on the inner face of said first inner longitudinally-extending arm of said second main piece.

31. The jogger member as claimed in claim 29, wherein said second outer transversely-extending arm includes a transversely-extending groove extending inwardly from an outer side face thereof.

32. The jogger member as claimed in claim 18, including: (e) slidable captive cap means having a leading edge, said slidable captive cap means being slidably-secured to said guiding member (d) for selective disposition of its leading edge a predetermined cantilevered distance over said guiding face of said guiding member.

33. The jogger member as claimed in claim 32, wherein said slidable captive cap includes a longitudinally-extending slot, and including screw means which is disposed in said slot and which is threadedly-secured to said upper edge of said guiding member to hold said slidable captive cap in its selected cantilevered position.

34. The jogger member as claimed in claim 32, wherein said slidable captive cap means includes a longitudinally-extending slot, and including screw means which is disposed in said slot and which is threadedly-secured to said upper edge of said guiding member to hold said slidable captive cap to said guiding member as well as to secure said slidable captive cap in its selected cantilevered position.

35. A support leg for use in erecting a universal press frame for a die cutting machine for die cutting and/or blanking a carton blank, said universal press frame including a rectangular framework comprising four connected rails, a plurality of support legs supporting said universal press frame, each said support leg comprising:

(a) a main base block;

(b) a longitudinally-extending, rectangular channel extending downwardly from an upper face of said main base block;

(c) a longitudinally-extending slot which is transversely-spaced-apart a short distance away from said longitudinally-extending channel, and extending downwardly from said upper face of said main base block; and

(d) a springingly-movable wall sited between said longitudinally-extending channel and said slot, the width of said longitudinally-extending channel and said rails being so-selected that said rail is held onto said longitudinally-extending channel by an interference fit.

36. The support leg as claimed in claim 35, including means for resiliently-urging said springingly-movable wall towards said longitudinally-extending channel, thereby to reduce the width of said longitudinally-extending channel and to lock said rail within said longitudinally-extending channel.

37. The support leg as claimed in claim 36, wherein said means comprises bolt or screw means which are disposed within a tapped hole in a side wall of said main base block adjacent to said slot, said bolt or screw means being adapted to be manually-urged into compressive-contact with said springingly-movable wall.

38. A template corner locking clamp for use in erecting a universal press frame for a die cutting machine for die cutting and/or blanking a carton blank, said universal press frame including a rectangular framework of connecting rails comprising two side rails a front rail and a rear rail said rails including an interior groove therein, and a plurality of template corner locking clamps, said template corner locking clamp comprising:

a) a longitudinally-extending base member;

b) means which are operatively-associated with said base member for selectively, but rigidly, securing said template corner locking clamp to said rectangular framework at a respective side rail adjacent to a front rail or a rear rail; and

c) a transversely-extending arm projecting at right angles from the top of said longitudinally-extending base member, said transversely-extending arm including a closed-ended, longitudinally-extending slot adjacent to its leading edge.

39. The template corner locking clamp as claimed in claim 38, comprising an upper "L"-shaped member having an upper longitudinal arm and an upper depending leg which is operatively-secured to a longitudinally-extending arm of a lower "L"-shaped member which also includes a lower depending leg.

40. The template corner locking clamp as claimed in claim 39, wherein said upper "L"-shaped member includes a longitudinally-extending arm which includes said closed-ended slot near its outer end to provide said means (c).

41. The template corner locking clamp as claimed in claim 39, wherein said space between said upper depending leg of said upper "L"-shaped member and said lower depending leg of said lower "L"-shaped member is related to the width of said rails to provide an interference fit.

42. The template corner locking clamp as claimed in claim 41, wherein said lower depending leg includes an upwardly-extending slot providing a springingly-movable wall, and manually-actuatable means for urging said springingly-movable wall into tight frictional engagement with said rail.

43. The template corner locking clamp as claimed in claim 42, wherein said manually-actuatable means comprises a bolt which is threaded into an internally-threaded transverse aperture in said lower depending leg, the end of said bolt abutting said springingly-movable wall.

44. A centre line bracket for use in erecting a universal press frame for a die cutting machine for die cutting and/or blanking a carton blank, said universal press frame including a rectangular framework comprising four connected rails, and a pair of centre line brackets for securement to the centre point of a front rail and a rear rail of said four connected rails, said centre line bracket comprising:

a) a generally-rectangular parallelepiped upper base block, said generally-rectangular parallelepiped upper base block including a transversely-extending cradle, e.g., a semi-cylindrical cradle groove, extending downwardly from a top face thereof;

b) a depending leg of the same width as said base member block, but of a lesser thickness; and

c) means which are operatively-associated with said base member block and with said depending leg for selectively, but rigidly, securing said centre line bracket to the interior of said rectangular framework at the centre point of a respective said front rail and said rear rail.

45. The centre line bracket as claimed in claim 44, wherein said front rail and said rear rails are each provided with a dovetail groove, and also are provided with an upstanding flange adjacent to their inner faces.

46. The centre line bracket as claimed in claim 44, wherein said means c) comprises an upwardly-extending slot on said depending leg, said upwardly-extending slot engaging the head of a bolt whose threaded end is threaded into an internally-threaded trapezoidal nut which is slidingly-disposed within said internal dovetail groove.

47. The centre line bracket as claimed in claim 46, wherein said upwardly-extending slot includes a countersunk similar upwardly-extending slot of a greater size.

48. The centre line bracket as claimed in claim 46, and also including a groove which is defined by an overhanging, downwardly-projecting flange, said groove being adapted to accommodate said upstanding flange on said rails.

49. An auxiliary adjustable support member for use in erecting a universal press frame for a female blanking die for die cutting machine for die cutting and/or blanking a carton blank, said universal press ~~frame~~ including a rectangular framework comprising two side rails, a front rail and a rear rail and a plurality of jogger members which are selectively-disposed along the interior perimeter of said rectangular framework, a plurality of auxiliary adjustable support members, each said auxiliary adjustable support member comprising:

a base member;

securement means which are operatively-associated with said base member for selectively, but rigidly, securing said auxiliary adjustable support member to the interior perimeter of said rectangular framework; and

a captive, longitudinally-slidable table having a leading edge, said captive longitudinally-slidable table being slidably-adjustably-disposed with respect to said base member.

50. The auxiliary adjustable support member as claimed in claim 49, wherein said connecting rails are each provided with an internal dovetail groove.

51. The auxiliary adjustable support member as claimed in claim 50, wherein said securement means comprises a transverse plate of a dimension enabling it to cooperate with said rails of said rectangular framework, said transverse plate including a pair of upwardly-extending slots into which a bolt or a screw may be engaged, said bolt or screw being threaded into an internally-threaded trapezoidal nut which is slidably-disposed within said internal dovetail groove of said rail of said rectangular framework.

52. The auxiliary adjustable support member as claimed in claim 49, including an integral longitudinally-extending plate which is disposed atop of said base member and overhangs the front edge thereof, and is provided with an internally-threaded aperture to enable engagement with said captive, longitudinally-slidable table which is disposed atop of said base member and overhangs the front edge thereof, said integral longitudinally-extending plate being threaded into said internally-threaded aperture.

53. The auxiliary adjustable support member as claimed in claim 49, wherein said captive longitudinally-slidable table comprises:

a captive longitudinally-slidable table which is transversely-disposed atop said integral longitudinally-extending plate, said captive longitudinally-slidable table having a longitudinally-extending closed-ended slot, and cooperating upper and lower complementary grooves, and

said lower grooves being adapted frictionally to engage the upper edge of said integral longitudinally-extending plate.

54. A grid support bracket for use in erecting a universal press frame for a female blanking die for a die cutting machine for die cutting and/or blanking a carton blank, said universal press frame including a rectangular framework comprising two side rails, a front rail and a rear rail, and a grid supported by said rectangular framework, said grid

comprising a plurality of intersecting rails, the pattern of the intersecting rails coinciding with the shape of abutting portions of a plurality of cartons which are contained on a sheet which has been die-cut by a male cutting die of a die cutting machine, a plurality of grid support and orientation brackets, said grid support bracket comprising:

a generally-step-shaped block, said generally-step-shaped block including an upper vertical arm and an off-set lower vertical leg, which are joined by a horizontal deck, a vertical slot extending from an upper edge of said upper vertical arm means associated with said upper arm for securing an additional distinct element within such vertical slot; and

securing means which are operatively-associated with said legs for selectively, but rigidly, securing said grid support bracket to the interior perimeter of said rectangular framework;

said grid being disposed within said longitudinally-extending slot atop said grid support bracket.

55. The grid support bracket as claimed in claim 54, wherein said connecting rails are each provided with an internal dovetail groove.

56. The grid support and orientation bracket as claimed in claim 54, wherein said securing means comprises a bolt, the head of which supports said vertical slot, the threaded end of which is threaded into an internally-threaded trapezoidal nut which is slidably-fitted within said internal dovetail groove.

57. A centre line orientation cylinder for use in erecting a universal press frame for a die cutting machine for die cutting and/or blanking a carton blank, said universal press frame including a rectangular framework comprising four connected rails, and a template having a perimeter that is substantially-identical to the outer perimetrical shape of a sheet containing a plurality of carton blanks which have been die-cut by a male cutting die of

the die cutting machine, a plurality of centre line orientation cylinders for aligning said template at the centre of said rectangular framework, said centre line orientation cylinder being insertable in said template along the centre line thereof, and said centre line orientation cylinder comprising:

a) an upper upright barrel;

b) a bore extending through said upper upright barrel adjacent to the upper end thereof;

c) a plurality of threads at the base of said upper upright barrel;

d) an internally-threaded circular disc-like collar threadedly-engaged with said plurality of threads at the base of said upper upright barrel; and

e) a depending cylindrical base of a lesser diameter than the diameter of said upper upright barrel, said depending cylindrical base being provided with a plurality of threads at the base thereof.

58. The centre line orientation cylinder as claimed in claim 57, wherein said internally-threaded circular disc-like collar includes a plurality of circumferentially-spaced-apart nicks therein.

59. The centre line orientation cylinder as claimed in claim 57, as a pair of said centre line orientation cylinders, and in combination with a cylindrical rod extending through said aligned bores, which extend transversely through said upper upright barrel, said pair of centre line orientation cylinders being secured to said template by means of a depending integral lower threaded end which is threaded into a "T"-nut which is secured within said template and which is held thereto by a threaded bolt washer.

60. A grid orientation cylinder for use in erecting a universal press frame for a die cutting machine for die cutting and/or blanking a carton blank, said universal press frame including a rectangular framework comprising four connected rails, and a template

having a perimeter that is substantially-identical to the outer perimetrical shape of a sheet containing a plurality of carton blanks which have been die-cut by a male cutting die of the die cutting machine, a plurality of grid orientation cylinders for aligning said grid accurately within said rectangular framework, said grid orientation cylinder being insertable in said template along accurate datum lines and said grid orientation cylinder comprising:

a) an upper upright barrel;

b) at least one slot extending through said upper upright barrel adjacent to the upper end thereof;

c) a plurality of threads at the base of said upper upright barrel;

d) an internally-threaded circular disc-like collar threadedly-engaged with said plurality of threads at said base of said upper upright barrel; and

e) a depending cylindrical base of a lesser diameter than the diameter of said upper upright barrel, said depending cylindrical base being provided with a plurality of threads at the base thereof.

61. The grid orientation cylinder as claimed in claim 60, including two of said slots (b) at right angles to one another, each said slot being of different widths.

62. The centre-line orientation cylinder as claimed in claim 60, wherein said internally-threaded circular disc-like collar includes a plurality of circumferentially-spaced-apart nicks therein.

63. The centre line orientation cylinder as claimed in claim 60, as a plurality of said grid orientation cylinders, and in combination with said template, said grid orientation cylinders being secured to said template by means of a depending integral lower threaded end which is threaded into a "T"-nut which is secured within a template which is associated with said female blanking die, and which is held thereto by a threaded bolt washer.

64. A rail connecting element for connecting two mutually-transverse rails together at right angles to one another, each rail including a dovetail groove therein, said rail connecting element comprising an inverted, "L"-shaped rectangular parallelepiped block, said inverted, "L"-shaped rectangular parallelepiped block including:

a) a through hole extending from one side face to the opposite side face;

b) a through hole extending from an end face to the opposite end face, said two through holes being longitudinally-offset from one another;

whereby a bolt extending through through hole a) engages a trapezoidal nut which is disposed in the dovetail groove in one rail, and tightening of said bolt secures the rail to the rail connecting element; and

whereby a bolt extending through through hole b) engages a trapezoidal nut which is disposed in the dovetail groove in the other rail, and tightening of said bolt secures the other rail to the same rail connecting element.

65. The rail connecting element as claimed in claim 64, wherein through hole a) is spaced-apart longitudinally-higher than through hole b).

66. Four rail connecting elements as claimed in claim 64, in combination with four mutually-transverse rails, each said rail connecting element being secured to two mutually-transverse rails to provide a rectangular universal press frame of two side rails, a front rail and a rear rail, in which said two side rails are at a lower level than said front rail and said rear rail.